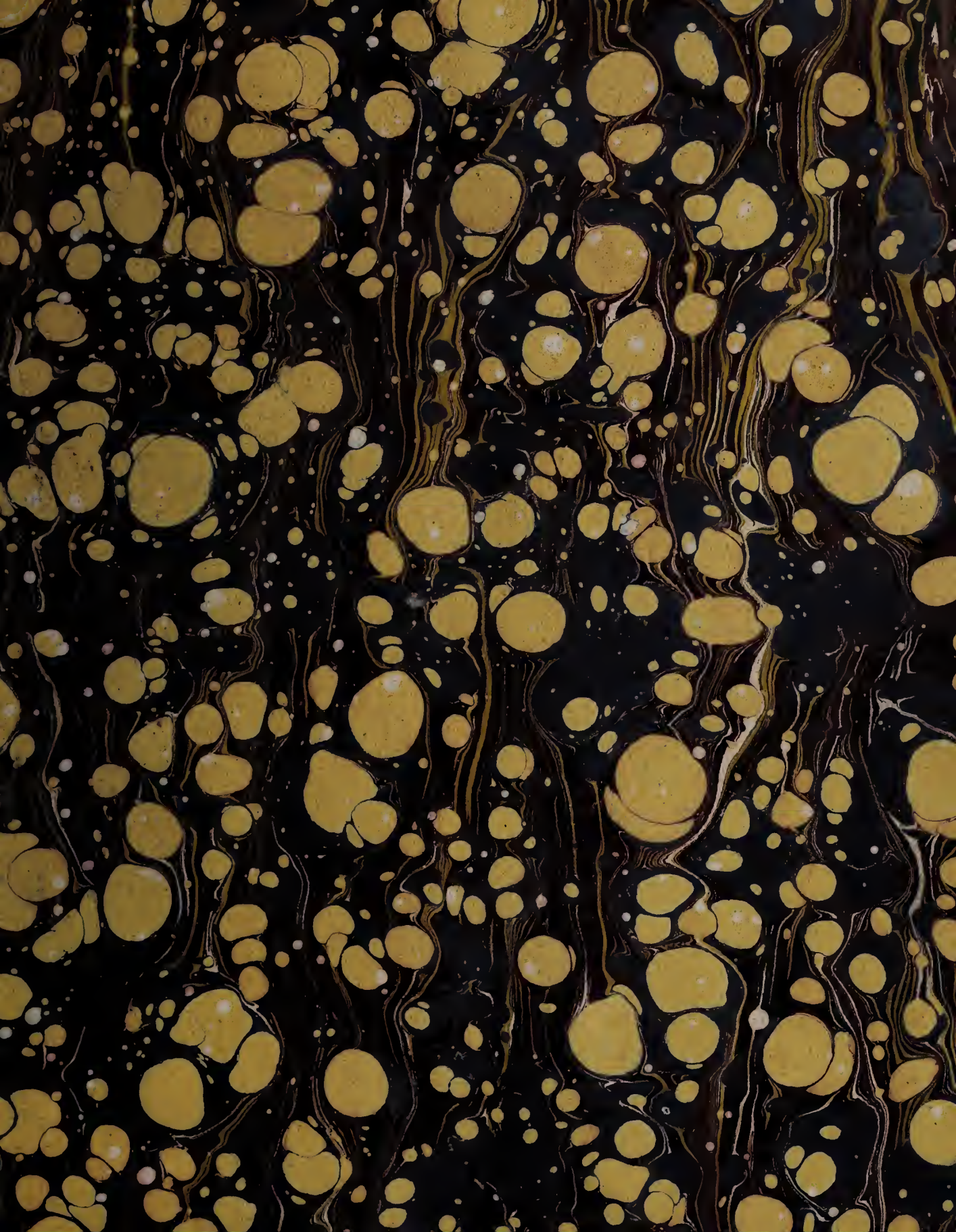






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Afzelius, A



integra; supernè remotè ferrata ferraturis obsoletis; apice truncata, subretusa; coriacea, utrinque glabra, nervosa: nervis parallelis, alternis, sursum curvatis; inter nervos tenuissimè reticulata, patentia, palmam ferè lata, et duplo longiora.

*Petiol*i femiteretes, canaliculati, basi hirsuti, vix pollicares.

Flos terminalis, solitarius, pedunculatus.

5. *D. ferrata*: foliis elliptico-ovatis acutis ferratis, pedunculis trifloris.

Crescit, secundum Rumphium, in *Celebe*, *Macassar*a, *Java*.

Sanguis, Rumph. Herbar. Amboin. tom. ii. p. 142, tab. 46.

Folia alterna, petiolata, elliptica, acuta, argutè ferrata, nervosa: nervis suboppositis et alternis, parallelis.

Flores in pedunculis lateralibus terni, pedicellati.

6. *D. dentata* (TAB. 20): foliis ovatis retusis dentatis, pedunculis trifloris.

Crescit in *Ceilon*a.

Ceilonensibus: Diapara.

Arbor ramis alternis, rugosis, cinereis, glabris.

Folia alterna, petiolata, ovata, obtusissima seu emarginato-retusa, infernè integra, supernè et apice dentata, coriacea, nervosa: nervis suboppositis, parallelis, sursum directis, utrinque glabra, supra viridia, subtus obscuriora, palmaria.

*Petiol*i angulati, glabri, folio paulo breviores.

Flores in ramis terminales, racemosi, subterni.

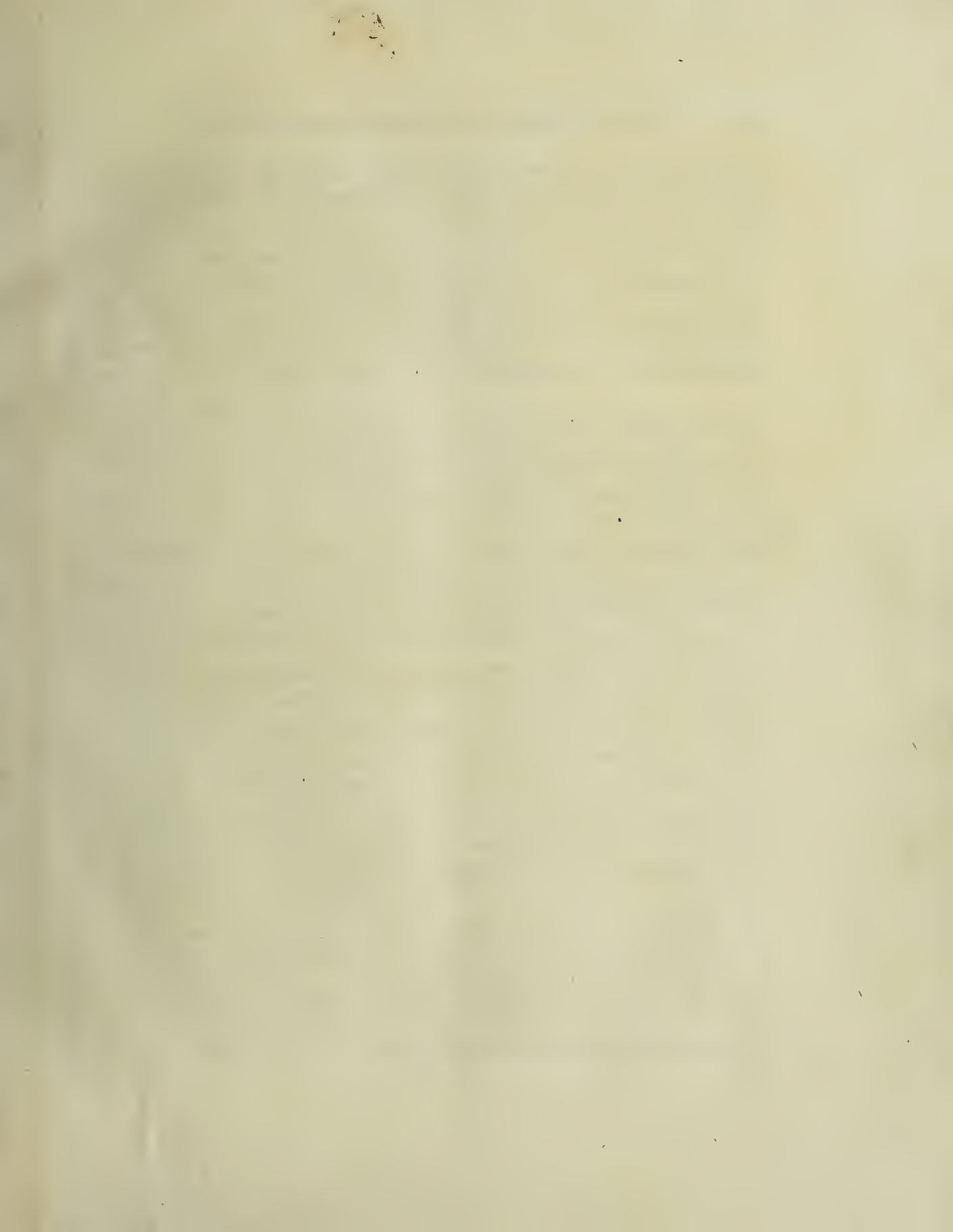
Pedicelli alterni, glabri, femipollicares.

XXV. *The Botanical History of Trifolium alpestre, medium, and pratense.*
By Adam Afzelius, M. A. Demonstrator of Botany in the University of
Upsal, Foreign Member of the Linnean Society.

Read November 2, 1790.

WITH a view of publishing a new edition of the *Flora Suecica* of the late illustrious Linnæus, I have long been occupied in procuring information concerning the Swedish Plants. Having spent ten years in this pursuit, I flattered myself with the idea of knowing all those described by him, a few only excepted, which I could not perfectly make out. But on my arrival in this country I found myself in an error; having met with many of the most common plants in Sweden, which in England bear quite different names. This discovery opened to me a new field of study and labour. It was necessary to examine whether the English or Swedish botanists understood by the true names the plants described by Linnæus. It would indeed be an inexcusable fault in the Swedish ones, if they, who had constant access to, and were tutored by, their master himself, should nevertheless be always in the wrong in such cases; accordingly we find the foreign natural historians now and then likewise mistaken.

This is the less surprising, as, in the first place, Linnæus has often misquoted synonymous names from the ancient authors; and, in the second place, when he has not given the description of the plants,



plants, his characteristics alone, being short and concise, will not always suffice to distinguish his plant from all others. This difficulty is great where there is no recourse to the specimen itself which he designed by such a name. A plant might be found in this country, for instance, which Linnæus never knew; which nevertheless might agree perfectly with the characteristics of one in his system, though it differed very essentially from it in many other respects: this might give rise to mistakes; as has frequently been the case.

If Linnæus has been the involuntary cause of such confusion, he has, however, a claim to our indulgence; for, independent of his want of leisure for minutely investigating every appellation given each plant by various botanists, he could not, in classifying nature, derive any assistance from preceding authors, as these in general furnished him but with a vague and confused sound of terms, owing to their own ignorance and carelessness, whereby they have strangely mistaken and confounded many very different plants. This has particularly been the misfortune of that inaccurate compiler Caspar Bauhin, and in a great measure also of Haller; so that, in consulting the former especially, one is always uncertain what he means. Another consideration is, that Linnæus at that time had no figures to refer to, except those of old authors, which at times are only cuts in wood, and for the most part so badly executed, that it is a hard matter, and sometimes even impossible, to pronounce which plant they are precisely meant to represent; especially when the question is of two species nearly related.

But, be this as it may, I find that the wrong quotations of Linnæus have often led other authors into error; owing apparently to their having paid more attention to his citations than to his very characteristic descriptions of plants, which however are the chief things to be considered; and, if maturely weighed, sufficient to pre-

vent many mistakes. I shall do myself the pleasure of communicating successively my observations relative to cases of this nature; but at present I shall confine myself to three species of Trefoil, which, common as they are, particularly two of them, still want a good deal of illustration. These plants have, even till this very time, not only been confounded among themselves, but also with many others. And though we are now furnished with good figures of each, still the true limits between them are not yet drawn; nor have these species as yet been so minutely and accurately examined, as for the always invariable and distinguishing characteristics of each to have been pointed out.

In order to form an adequate idea of these Trefoils, and to know their history from the beginning to the present time, I have examined all authors quoted by Linnæus, Reichard, Murray, and the English botanists, with many others that I have been favoured with an opportunity of seeing in the large and choice library of Sir Joseph Banks; without which assistance, and the examination of the Linnean Herbarium, my enquiries would have been confined and imperfect. In the course of my investigations I have discovered, that many of the authors cited treat of plants quite different from those for which they have been quoted; and that others speak in such a manner, that it is impossible to judge to what particular species their inaccurate figures, confused descriptions, and vague characteristics, if at times even all three are to be found together, are the most applicable. With regard to those authors who have either been mistaken themselves in their quotations, or been misquoted by others, I have, to the best of my judgment, endeavoured to put them in their proper places: and, as to the others, I could do no more than make my observations, and give my opinion, where particular hints or circumstances have not enabled me to discover what they

they meant. Upon the whole, indeed, these authors are of a local use only, in pointing out to their own countrymen the places where their native plants are to be found.

In the first place, therefore, I beg leave to give a brief history of each of these three Trefoils, and shew with which each of them has been, and still is, confounded, together with my reasons for what alterations I may have made. In the second place, I shall quote the genuine synonyms of authors, whom I am by sufficient reasons convinced to have treated of these plants. And, thirdly, I shall add an adequate description of each, with particular characteristics sufficient at all times to distinguish them from each other, and from the species nearest related to them. To begin then with

TRIFOLIUM ALPESTRE.

Clusius is, to my knowledge, the first who mentions this *Trifolium*, in his History of the Hungarian and Austrian Plants. He has left us no figure; but his description, brief and imperfect as it is, still suffices to convince us that he meant the real one. He says that, both in shape and size, it much resembles the preceding, which is either *Tr. pannonicum* or *Tr. montanum*; but that its leaves are somewhat more narrow; its flowers red, and without smell; its spikes in general two in number, one of which is smaller than the other, and both of them close together at the top of the stalk, without peduncles, and as it were concealed within the uppermost leaves. This description he has afterwards introduced unaltered into his larger History of Rare Plants.

Caspar Bauhin has quoted both these passages of Clusius under his *Trifolium montanum purpureum majus*, in his Pinax; from which it indeed appears probable that he meant the same plant, but it is not quite certain; as he adds, *Trifolii altera species major*, Gefn. and
Trifolium

Trifolium aliud montanum majus, Thal. who appear to treat of species different from those of Clusius. Gesner says only that his *Trifolium* is larger and more common than *pratense*: but these remarks, though brief, give more reason to suppose he meant *Trifol. medium*, than *alpestre*; which latter is rather a scarce plant, and but little resembling our common clover. On the other hand, Thalius describes his *Trifolium* as having *oblongum quasique spicatum capitulum*; adding that the *Trifol. spicatum*, which Tragus calls *Cytisus*, only differs from it by having longer leaves as well as spikes. Now the *Cytisus* of Tragus being *Trifol. rubens* α , it is also probable that the plant of Thalius is its variety β ; and if this be the case, C. Bauhin would have done better had he placed this quotation under his *Trifolium spica oblonga rubra*. Perhaps this author, never scrupulous in his quotations, meant, however, by his first-mentioned *Trifolium*, the real *alpestre*.

But, at all events, Bauhin has been indiscriminately quoted by every succeeding writer that had occasion to treat of either *Trifolium alpestre* or *medium*. Among the authors more immediately succeeding him, I have had an opportunity of consulting John Bauhin, Ray, Ruppius, Tournefort, and Boerhaave. Both the first-mentioned, in their *Historiæ Plantarum*, have copied the description of Clusius; and thus there is no doubt but their *Trifolium* was the true *alpestre*. But Ray has made a mistake in adding *Ger. Em.* 1186. 4, and *Park.* 1103. 1; for both these treat of *Trifolium spica oblonga rubra*, C. B. under which name he has likewise quoted them, and consequently twice on the same page, and under two different species. Here I must also notice another mistake committed by Ray, or rather, perhaps, by his editor Dillenius. In his *History*, as well as both the first editions of his *Synopsis*, he has described a *Trifolium* which is the real *medium*, without referring to
any

any preceding author. But in the third edition we find quoted such as have intended the *Trifol. alpestre*. Ruppius has done the same, remarking at the same time that his *Trifolium ferè simile est illi quod scribitur in agris ad jumentorum pabulum*; and thus it can be no other than the *medium*. Tournefort and Boerhaave, as usual, have no description, and consequently we cannot judge but from their quotations; and if they knew the meaning of their authors, they certainly intended the *alpestre*. Yet Boerhaave has added *Morif. 2. 139. 1*, which is certainly an error, as Morison there treats of *Trifol. rubens* β.

Among recent authors, I mean such as wrote after the reformation of botany by Linnæus, and until he named the *Trifol. alpestre*, I have studied Van Royen, Haller, Scopoli, and Hudson. The first of these has given us only the specific differences of his plants, which afford no great information; but still, in calling its *folia ovato-oblonga, integerrima*, he seems rather to hint at the *Trifol. medium*. That Haller, Scopoli, and Hudson had also this in view, is beyond a doubt, as I shall soon prove. I will just observe here, that Haller, under this head, has not only brought in several varieties, which indeed I have not seen, but that appear to be different species; but, according to his usual practice, has injudiciously huddled together a vast number of synonyms, particularly in his *Stirpes Helveticæ*, which belong to at least three separate species of *Trifolium*, viz. *rubens* β, *alpestre*, and *medium*.

Nearly the same confusion is observable in his edition of Ruppius; for, after having copied the above-mentioned description of *Trifol. medium* by that author, he adds a circumstance that belongs to the *rubens*. I have at least not yet seen any species besides this last, of which it can be said, *vaginis petiolorum floralium latioribus a vulgari pratensi differt*. That Haller also really meant the *rubens*, I am further induced to believe, from his having, in this edition, left out
Trifolium

Trifolium montanum, *spica longissima rubente*, C. B. which is found in both the preceding ones; and also from his having added the figure of Rivinus, TAB. 12, which indeed represents the *alpestre*, but for want of attention might easily be mistaken for the *rubens* β .

At last Linnæus introduced *Trifol. alpestre* into the second edition of *Species Plantarum*. But this, instead of settling the confusion, served rather to increase it. For, besides the genuine synonyms of Clusius and J. Bauhin, he has also added the uncertain ones of Van Royen and C. Bauhin, together with some observations, which, though very brief, still unfortunately regard three distinct species, viz. *alpestre*, *medium*, and *pratense*. Afterwards he inserted this into the twelfth edition of *Syst. Naturæ*, with the following alteration—that the word *sessilibus* in the specific character was left out, as was necessary, when he confounded it with *medium*, which frequently has pedunculated spikes. A more ample description was also made, with a view of distinguishing it from the *pratense*. But the distinguishing marks, taken chiefly from the stipulæ, may suit the *alpestre* as well as the *medium*, although this latter bears a stronger resemblance to *pratense* than the former does.

Of all the authors who from that time have treated of the *Trifol. alpestre*, I am not certain that any one besides Jacquin, Allioni, and perhaps Doerrien, had the real one in view. I say nothing of Murray and Reichard; as what they have inserted into their editions of the *System*, is nothing further than copies from the twelfth edition, except their having still more confounded it with the *medium*, by quoting other authors, who were mistaken themselves.

Thus professor Jacquin is the first person to whom we are indebted for a perfect and just idea of *Trifol. alpestre*, from his good figures and descriptions, first in his observations, and afterwards in his *Flora Austriaca*. But his quotations are not all to the purpose;

pose ; for, in my opinion, independent of the equivocal *C. Bauhin*, neither Van Royen, Haller, nor Crantz are properly cited. Of the first of these I have already spoken ; and, with regard to the three latter, Haller, meaning to distinguish his *Trifolium* from the *pratense*, mentions, indeed, nothing but what serves for this purpose ; nevertheless, when he says that it has *vaginæ in latiuscula foliola terminatæ*, or *stipulæ lanceolatæ*, *folia supernè raro maculata*, *calyx glaber*, & *florum spica obefior*, he can hardly intend this for any other than *medium*. The same is the case with respect to Crantz, who tells us that his plant has *caules ramosi, angulosi, vaginæ petiolorum striis rubentibus, folia inferiora et media integerrima, sed superiora ciliato-ferrata*, and *calyx basi dentibusque coloratis* ; all of which does not accord with the *alpestre*, except that the *vaginæ* are sometimes, though very seldom, marked with a few red streaks, whereas those of the *medium* are almost always so.

Before Jacquin, Rivinus had in the last century given us a pretty good figure of *Trifol. alpestre*. But although Haller in his *Stirpes Helveticæ* referred to him, he has nevertheless happened afterwards to be constantly overlooked ; probably because the plant was not well known until Jacquin published his observations. Thus we have now three figures of this *Trifolium*, all of which are original.

Though professor Allioni has not given us any description, yet, as he has admitted into his *Flora* the *Trifol. flexuosum* of Jacquin, there is reason to suppose his *alpestre* may be the real one ; though he also has quoted all the authors set aside by Jacquin, and whom I have already mentioned ; adding Scopoli likewise, who certainly means the *Trifol. medium*, though he terms it *alpestre* ; for he says that it has a *caulis subangulatus, folia subtus pallidiora, tumor callosus inter ramos et caulem*, and *calyx glaber striis rubris exaratus*.

Madame Doerrien, as she immediately before mentions a *Trifo-*

lium which appears to be *medium*, must certainly by her *alpestre* understand another species, and perhaps the true one; at least she describes the leaves as having short footstalks, and being destitute of white spots; and the teeth of the calyx, especially the lowermost, very long and hairy. On account of this last expression, her plant might rather be supposed *Trifol. rubens*; but this conjecture falls to the ground, when she says that the heads of the flowers are roundish.

The other modern authors who have treated of *Trifol. alpestre*, seem all to have erred. But as in all probability they have not all had the same species in view, any more than has been shewn to have been the case with the old writers, I proceed, in order to present in a clear point of view this plant, which all along has been so confusedly described, to enumerate all the *Trifolia* with which from remoter times to the present day it has been confounded, and which are the following, viz.

I. *Trifolium rubens* β.

As undoubted synonyms of which I may mention here—

Trifolium majus flore purpureo. Ger. Em. p. 1186.

n. † 4. *

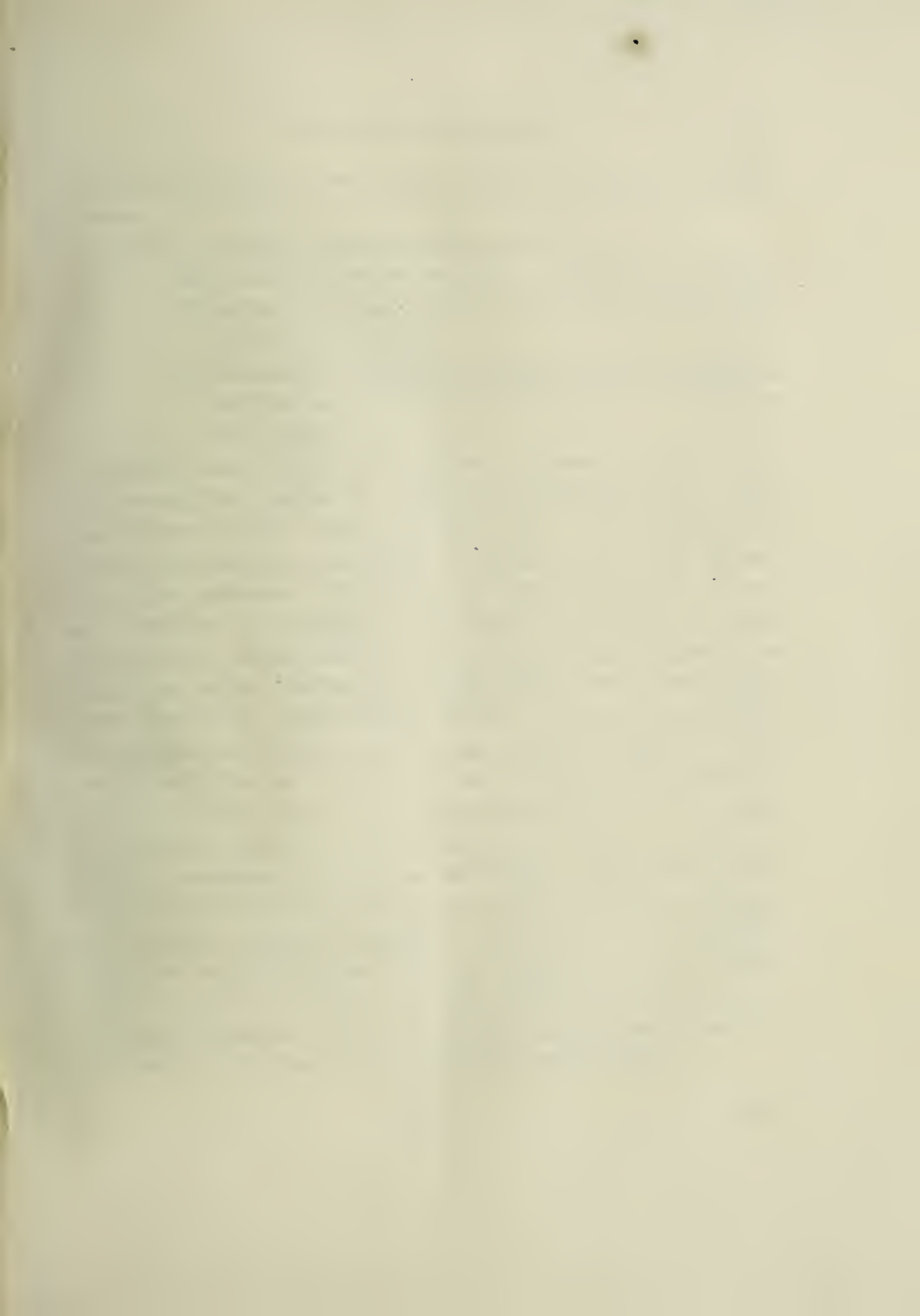
Trifolium montanum majus purpureum. Park. Theatr.

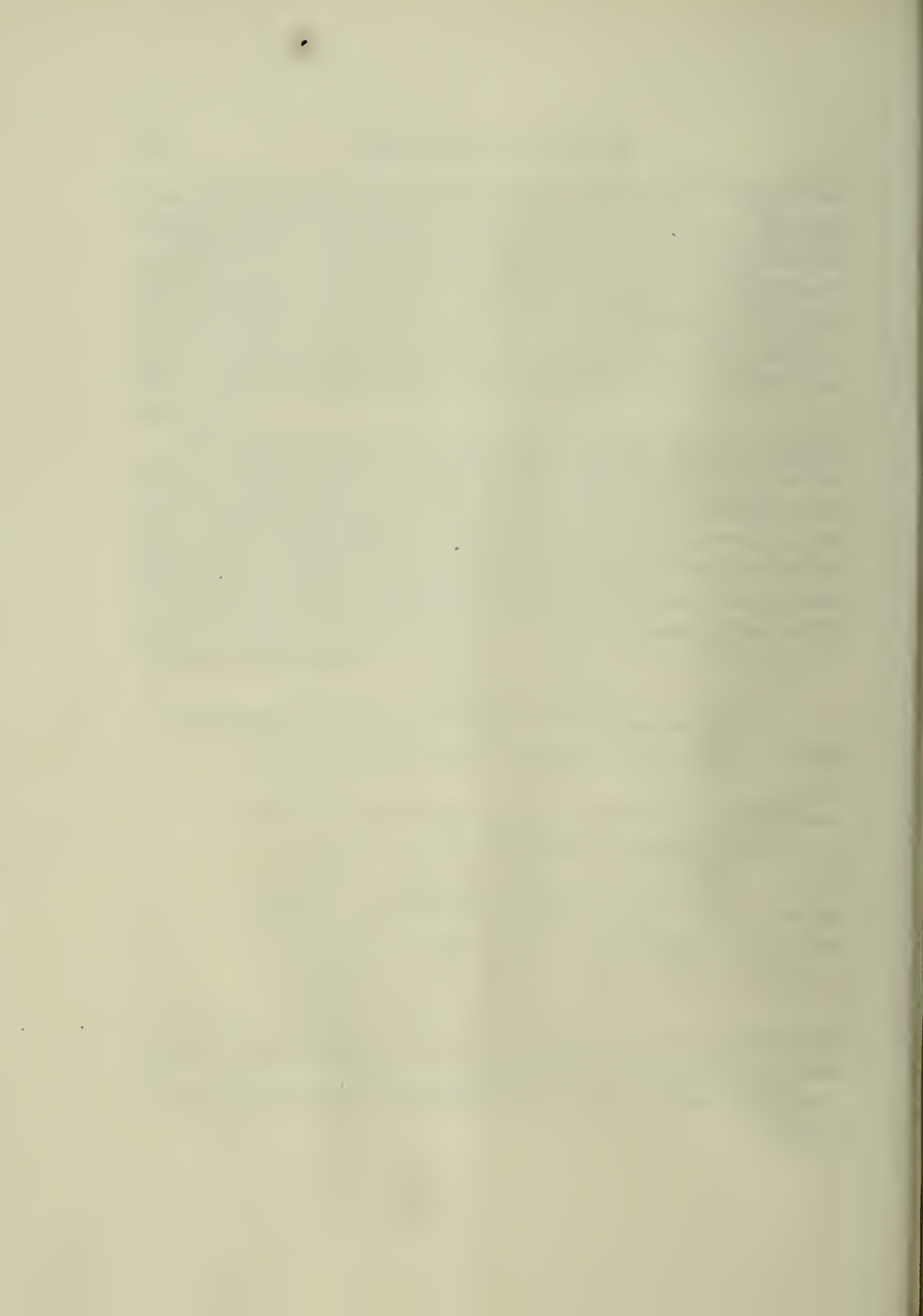
p. 1103, n. 1. * Et *Trifolium montanum majus flore purpureo.* Ibid. p. 1104, n. 1. fig. sup. integr.

Trifolium purpureum montanum majus spica oblonga.

Mor. Hist. ii. p. 139, n. 1. * Et *Trifolium Lagopoides montanum*, 3. Clus. Ibid. sect. 2, tab. 12, fig. 1, sec. ord.

All these authors exhibit one and the same figure taken from Clusius; and of which, in the next article of *Trifol. medium*, I shall have an opportunity of speaking further. As I have said before,





Gerard and Parkinson are cited by Ray, and Morison by Boerhaave.

To this place might perhaps also be referred—

*Trifolium aliud montanum majus. Thal. Herc. p. 123, fq. **

*Trifolium folio longo flore purpureo Riv. Rupp. Jen. Ed. Hall. p. 254, fq. **

Trifolium spicis subglobosis villosis terminalibus sessilibus, caule erecto, foliis lanceolatis ferrulatis. Gmel. Sib. iv. p. 22, n. 20.

Thalium and Ruppium I have before mentioned; and have now only to add, that Haller also in his *Stirpes Helveticæ* has quoted the first under *Trifol. rubens* β , p. 584, n. 11. * As to Gmelin, it is indeed uncertain what he meant, as he has added no description; but if his quotation of *Trifolium spica oblonga rubra, C. B.* be true, his *Trifolium* is not *alpestre*, but *rubens*. It is possible too that he may have confounded these two species, which so nearly resemble each other, that mistakes might easily be made, and are the more pardonable. Notwithstanding this, they are really distinct; for, besides the *Trifolium rubens* being in general larger, its leaves are on both sides free from hairs; and in the edges they are finely serrated by means of the veins running out into small curved points directed towards the top, shorter and longer alternately, exactly as in *Trifol. montanum*; both *vaginæ* and *stipulæ*, particularly of the floral leaves, are much larger, and not hairy; the former swelling, and the latter somewhat ferrulated: the spikes in the beginning sessile, and concealed within the floral *vaginæ*, exactly as in *Trifol. alpestre*; but afterwards they grow more or less pedunculated, oval, oblong, or cylindrical: calyx smooth, but its teeth hairy; and the lowermost of these teeth are as long as the whole flower.

2. *Trifolium medium.*

Although I am but little surpris'd at the earlier authors having sometimes mistaken the *Trifol. rubens* for *alpestre*, I very much wonder that the modern ones could confound *alpestre* with *medium*, or regard this latter as the true *alpestre*. Nevertheless this has frequently been the case; for, after it had been named by Linnæus, I have found about twenty authors mentioning a *Trifolium* which they call *alpestre*, only two or perhaps three of whom, as I have said above, may with certainty be affirmed to have treated of the genuine one. Most of the rest, to judge by their writings, have had the *Trifol. medium* in view, though, exclusive of its stipulæ and the characteristics common to the whole genus, it bears very small resemblance to the *alpestre*: for its stem is flexuose, angular and branched; the footstalks longer and divaricated; the leaves broader; the spikes generally pedunculated; calyx mostly smooth, and its teeth larger, &c. Whereas the *Trifol. alpestre* has a straight, round, and simple stem; short and erect footstalks; narrow and strongly veined leaves; spikes constantly sessile; a calyx always downy, and all over of the same colour; its teeth shorter than those of the *medium*, but the lowermost one is proportionably longer.

3. *Trifolium pratense.*

Linnæus says of *Trifol. alpestre* that it is *ramis copiosissimis luxurians in satis*. But I am confident he never saw either the *alpestre* or the *medium* in a cultivated state; and consequently that by this expression he points at the *pratense*, which is commonly cultivated in Sweden as well as other countries; and, through cultivation, varies into such a resemblance to *Trifol. medium*, that, without strict and minute examination, they can hardly be distinguished. Still the *pratense* has always *caules basi adscendentes*, and they are not flexuose; branches

branches and leaves erect, but not divaricated; vaginæ and stipulæ much larger than those of the *medium*, and the stipulæ terminating in a setaceous awn; the spikes single, and without a peduncle; the flowers erect, not divaricated; and the lowest tooth of the calyx far shorter than the tube of the corolla, &c.

As Linnæus confounded *Trifol. medium* with *alpestre*, and saw it growing in Sweden on all dry hills near forests, resembling the cultivated *pratense*, we see the origin and reason of the above-mentioned expression, *ramis copiosissimis luxurians in satis*; which however he afterwards excluded, having probably observed his mistake. How far the *Trifol. alpestre* is fit for cultivation, I cannot determine; but, as to *medium*, I have reason to think it is not. For I have observed the same singularity respecting it which professor Jacquin mentions—that, when planted in gardens, in a good and loose soil, it generally grows more slender, and particularly its spikes become smaller; but on eminences, in a dry, hard, and uncultivated clay bottom, it grows spontaneously very luxuriant.

4. *Trifolium pannonicum*.

To this I think may be referred—

Trifolium alpestre. *Gouan. Illustr. p. 52. **

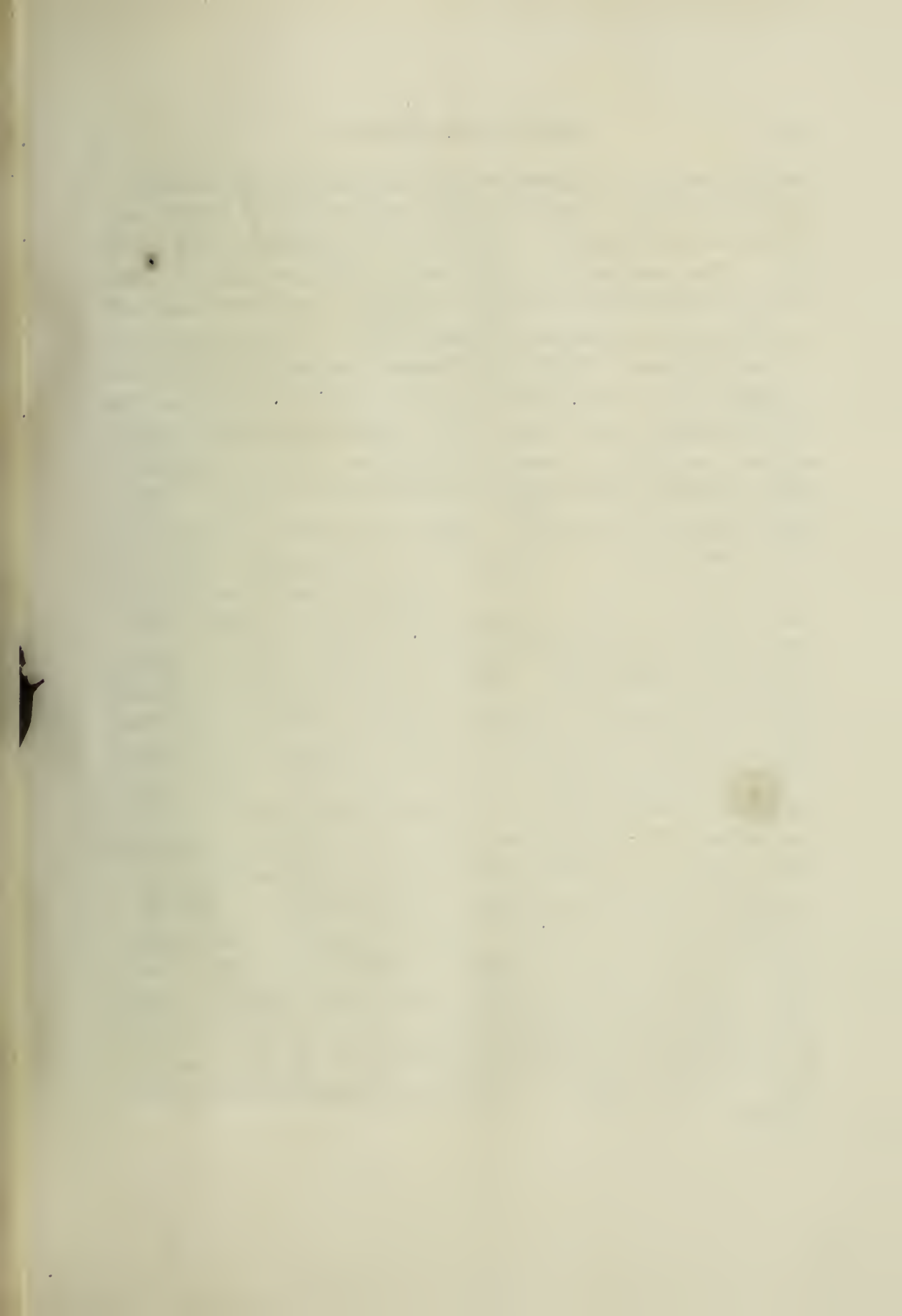
Many cultivated plants being seen producing variegated flowers, it has been supposed that the same might also be the case with respect to the wild ones. But on stricter search it will be found, that in this point plants are mostly in the same predicament with animals, the tame or domesticated individuals of which vary greatly as to colour, but not the wild ones. It has also been discovered that various plants with differently-coloured flowers, which have been long esteemed only varieties of each other, are really distinct species; and that, on more minute examination, besides the difference
of

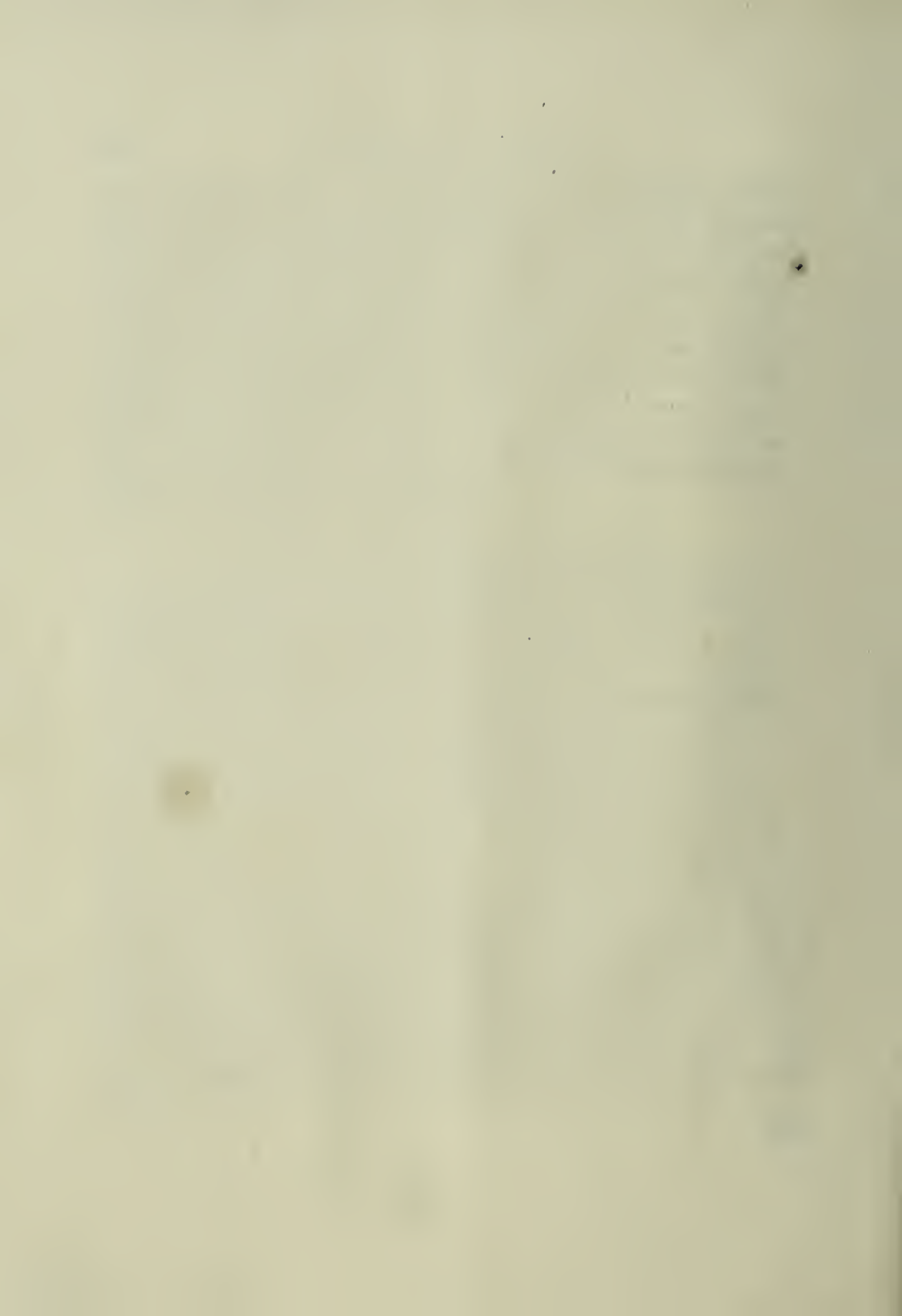
of colour first observed, they also differ in other respects, particularly as to their parts of fructification. Thus when professor Gouan says of his *Trifol. alpestre*, that it has *flores ochroleuci*, there is reason to suspect its not being the real one; and as we have no other species than the *ochroleucum*, *pannonicum*, and *montanum*, which answer to this description, and are otherwise as to their form and appearance nearly related to the *alpestre*, it may naturally be supposed that he meant one of these three: now it cannot be either the *ochroleucum* or the *montanum*, as he has separately mentioned these in the same place; consequently his *Trifol. alpestre* must either be the *pannonicum*, or a new species.

TRIFOLIUM MEDIUM.

If my conjecture already mentioned respecting Gesner be just, he is the first author who treats of this *Trifolium*. But the first certain account of it was given by Ray in his History; and it is evident, from his description, that he meant the real one. As in its appearance it resembles the *pratense*, he has justly compared them together, saying, that the *medium* is in all respects larger; that the leaves are not always marked with white spots, and that they have more conspicuous veins, particularly on the under side; that the spikes are more round, having long peduncles; and that the flowers are of a deeper purple. But he commits an error in believing it to be the same as that cultivated in meadows: yet he has altered this in the first edition of his Synopsis; and in the second he kept them separate, as did also Dillenius in the third edition. He is the first who added the synonymous appellations of other authors, but unfortunately fixed upon these three, Clusius, J. Bauhin, and C. Bauhin, neither of whom meant the same plant as he did, or the *Trifol. medium*; but, on the contrary, the *alpestre*; especially the two first, as is mentioned above.

After





After Ray, this *Trifolium* was mentioned by Ruppius, Tournefort, Boerhaave, Van Royen, Haller, Wilson, Scopoli, Hill, and Hudson; and these are the only writers I have found noticing it, before Linnæus named it. Tournefort and Boerhaave only quoted Ray, and mentioned his plant as separate from *Trifolium montanum purpureum majus*, C. B. which latter, consequently, they could not take for the *medium*, but rather for the *alpestre*, where, if it were to be cited at all, it ought to have its doubtful place. With respect to Ruppius, Van Royen, Haller, and Scopoli, I have already said what I thought necessary, and that they have all mistaken it for the *alpestre*; at least in this respect, that under it they generally quoted such authors as meant the *alpestre*. The same is done by Wilson and Hill; who, moreover, only copied what they found in the third edition of Ray's Synopsis.

Mr. Hudson, in his first *Flora Anglica*, called it *Trifol. medium*, giving it a new character, and adding the doubtful quotation of C. Bauhin, as well as the true one of Ray. Mr. Hudson did not then know that Linnæus, a year ago, had given it the same name in his *Novitiæ Floræ Suecicæ*, which are subjoined at the end of the second edition of his *Fauna Suecica*. At all events, it was not easy to discover what Linnæus meant; as he neither added character nor description, and afterwards neither mentioned the *Trif. medium* any where in his works, nor referred to this place in the *Novitiæ*. The extrication of this would also have been impossible to any but Swedes who could go to Jumkil, where he says this *Trifolium* grows. This place, which is famous for the number of its rare plants, is situated about thirteen miles from Upsal. I have visited it, and found there the *Trif. medium*. Besides, I have seen it under the same name, by the authority of Linnæus, in all old Swedish Herbariums, and especially in his own. Further, as it is in some
measure

measure a medium species between the *alpestre* and *pratense*, I think I have reason to prefer the oldest name, and which was given by Linnæus himself; though he afterwards changed it for *alpestre*, or rather confounded these two species. Hence he says, in the second edition of *Species Plantarum*, that *Trifolium alpestre* grows also in Sweden; whereas no other than the *medium* is found there.

It appears as if Linnæus had been led into this mistake by the stipulæ, which in both are similar, and very different from those of *Trifol. pratense*, though in other respects the *alpestre* and *medium* have few things in common. However, it seems as if succeeding botanists had generally regarded the *Trifol. medium* as the *alpestre*, and confounded the synonyms of both; whereas, nevertheless, properly speaking, the *medium* has neither *caulis erectus*, nor *folia lanceolata serrulata*. But having in various authors observed various notions of these and other terms, this no longer appears singular to me. At all events it is certain that the *Trifol. alpestre* of all the English botanists, of Crantz, Scopoli, Pollich, Leers, Muller, Retzius, Lieblein, and perhaps also of Gmelin, Scholler, Mattuschka, Reichard, and Willdenow, is no other than the *Trifol. medium*; for I am informed that this latter only, and not the former, grows in England and Scotland, as Dr. Stokes has before observed; and the same I can say of Sweden, Denmark, and Norway. Besides, the figure of Muller plainly evinces that his *Trifol. alpestre* is the *medium*.

That Crantz, Scopoli, Pollich, Leers, and Lieblein have made the same mistake, is evident from their descriptions, as with regard to the two first I have shewn above; and, as to the three latter authors, they compare their *Trifolium* with the *pratense*, saying that its stem is for the most part depressed, or almost lying on the ground (especially at the bases), somewhat angular, and furnished with joints; the leaves are seldom spotted, and are on the under
side

side of a lighter green; the flowers of a deeper purple, and the spikes nearly globular. Pollich and Leers add, that they are larger, and generally shorter, or have longer peduncles, particularly when grown old; and that the calyx is mostly without hair, and marked with red-brown lines or nerves. But when Leers further adds, that the *foliola* are *lineari-lanceolata*, and *calycis dentes brevissimi, infimo tubo corollæ dimidio brevior*, the former observation suits better with *Trifol. alpestre*, and the latter with *Trifol. pratense*. Lieblein has likewise made this remark on the teeth of the calyx, namely, that they are very short.

Scholler in his Flora, and Mattuschka in his Enumeratio, have only copied what Linnæus has said in the twelfth edition of his System, under the head of *Trifol. alpestre*; but Gmelin in his Stirp. Tubing., Reichard in his Flora, and Willdenow, have no description at all. In his Flora, Mattuschka has indeed said many pretty things; all of which, however, are equally applicable to *alpestre* and to *medium*. Thus it is impossible to determine, with any degree of certainty, what species the *Trifolium* of these authors really is; but, if I am not much mistaken, they have all intended the *medium*. This, however, I only say by way of conjecture, leaving it to time further to elucidate this matter.

With regard to Gorter, who inserted the *Trifolium* of Ray as a variety of *pratense*; nor with regard to Nonne and Gattenhof, who have mentioned *Trifolium spicis villosis foliis insidentibus, vaginarum caudis latioribus*, Hall. and added the often-mentioned and doubtful synonyms of C. Bauhin and Van Royen; nor, lastly, with regard to Jenkinson, who has taken up *Trifol. medium* probably from Mr. Hudson, and only translated the character he gave of it into English—have I much more to say. Though all these authors have no description, Nonne excepted, who has added that inaccurate

rate observation of Haller's, out of his edition of Ruppius's *Flora Jenensis*, of which I have made mention above, viz. that the *vaginae petiolorum floralium* are broader than those of the *Trifol. pratense*; it still seems probable to me, that they all meant the *Trifol. medium*.

At last Professor Jacquin has given us information concerning this *Trifolium*, by means of a separate description, and a good figure of it, in his *Flora Austriaca*, where he calls it *flexuosum*. But, though fifteen years have now elapsed since its publication, still I have found none but the Chevalier Murray, Professor Allioni, and Dr. Stokes, who have referred to it. The first of them has placed it under *alpestre*, though there were just as good reasons for making this a distinct species as many other new plants which he has inserted in the fourteenth edition of the *System*. Professor Allioni has said no more concerning it, than that it grows in Piedmont, and has an annual root; which remark surprises me the more, as it is described by all others to be perennial: a circumstance I can prove by my own experience. Dr. Stokes has given us pretty good observations on the subject, collected from various quarters. Besides these three authors, no others who have written after the publication of Professor Jacquin's figure, have attended to it, although they have meant the same plant. Some of them had perhaps not then seen this figure, but all cannot plead this excuse.

Thus, though Professor Jacquin is the first who has given us a proper idea of *Trif. medium*, and taught us to separate it from the real *alpestre*, still I cannot conceive but that he has confounded it, at the same time, with another equally distinct species: for he has quoted as synonymous *Trifolium majus* iii, Clus. and, to the best of my judgment, this is the *rubens* β . For this I will give my reasons, which I shall chiefly take from the very description of Clusius.

He

He says of this Trefoil of his, that it is by far larger than the next preceding, viz. the *alpestre*; that it has also thicker stems; that its leaves are *friata, dorso magis eminente et elato, laxa quadam veluti vagina caulem amplectentia, duplo longiora et per oras denticulata*; and, lastly, that the spike is *oblongior* and *major*. All this, and especially what he says of *vaginæ* and *foliola*, does by no means agree with *Trifol. medium*. He mentions, indeed, at the same time, that the stalks are *nodosi*, or have *geniculæ*, and that the calyx is hairy; but by the first I do not believe he understands any flexure but the joints (*nodi*), which in the *Trifol. rubens* are larger than in any other, owing apparently to the very large, and as it were inflated, *vaginæ* of the *stipulæ*. And as to the latter observation, the calyx of the *Trifol. rubens* is indeed always naked; but so is, for the most part also, that of the *medium*. Still both of them have hairs on the teeth of the calyx; but the *rubens* has those hairs both longer and in greater abundance; which, being divaricated, almost cover the calyx, so that at first sight it appears to be all over hairy. Clusius therefore may be excused for thus describing it.

This author immediately after subjoins his *Trifolii majoris* iii *altera species*, of which he only observes, that *vel magnitudine vel foliorum et florum forma aut colore, nihil aut quam minimum differt. Folia tamen angustiora illorum longitudinem aliquantum excedere videntur, et florum spica longior esse*. This being by common consent *Trifol. rubens* α , the next preceding can be no other than the variety β . For it is not probable that Clusius, who for his time was very accurate, should have found so great a likeness between two plants so different as *Trifol. rubens* and *medium* are. Besides, as he has four species of his *Trifol. majus*, which he compares together, saying that, as to their external appearance, they are all similar; the chain will be uninterrupted, if they are supposed to be *Trifolium montanum*, or perhaps

pannonicum, *alpestre*, *rubens* β , and *rubens* α ; but it will be broken if, instead of *rubens* β , the *medium* is inserted, whole form and appearance are very different from all the other three. It is true, the figure of his *Trifolium majus* iii. seems rather to resemble the *medium* than the *rubens*, being hairy and somewhat branched. But the same may be said of his figure of *Trifolii majoris* iii *altera species*: and thus neither of these figures of Clusius can be taken for *Trifol. rubens*, or else both of them must. I believe, however, the latter opinion is the safest, as his descriptions so well agree with *Trifol. rubens*, and as it is not yet perfectly certain whether this plant does not at times become branched. Lastly, as to the hairs which Clusius has represented in the edge of his figures, I believe they are rather meant to represent their fine teeth, than any hairiness.

Having endeavoured to prove that the *Trifolium majus* iii of Clusius ought to be considered as the second variety of *Trifol. rubens* with broader leaves and shorter spikes, I shall conclude by citing a few synonyms, as an addition to those quoted in the preceding article of *Trifol. alpestre*. These are—

Trifolium maximum purpureo flore. Clus. *Pann.* p. 760, n. 3. * Et *Trifolium majus* iii. *Ibid.* p. 762. Et *ejusd.* *Hist.* vi. p. 245, n. iii *.

Trifolium spica oblonga rubra. *Bauh. Pin.* p. 328. *Ray, Hist.* i. p. 944, n. 7. *

Trifolium purpureum majus, folio et spica brevior. *Bauh. Hist.* ii. p. 375, fig. *inf.*

Trifolium majus tertium purpureum, Clusio. *Bauh. Hist.* ii. p. 375. *

The figure of John Bauhin, as well as those of Gerarde, Parkinson, and Morison, as already mentioned, are only re-impressions of the original of Clusius, whose description is likewise copied in

part by Gerarde and Parkinson, but entirely by Ray, Morison, and J. Bauhin in the last-mentioned place, where it is not accompanied by a figure. But this the author has inserted in the former place along with the figure of *Trifol. rubens* α , which variety he has also described there himself. Dr. Stokes, after the example of Professor Jacquin, has quoted under his *Trifolium flexuosum*, not only the figure of Clusius, but also those of Gerarde, Parkinson, and J. Bauhin, to which he has added another by Parkinson, which represents the upper part of *Trifol. pannonicum*, or else the *montanum*.

TRIFOLIUM PRATENSE.

Although we have but few figures of *Trifol. alpestre* and *medium*, viz. three of the former and two of the latter, those of the *pratense* are more numerous. If I were to say I had seen upwards of sixty myself, it might perhaps, true as it is, sound extravagant. Of these, fifteen or sixteen may be esteemed originals, and all the others either copies, or only re-impressions from the same plates of those published before. This last was most customary in the two last centuries. And thus these figures constitute several sets, which I shall briefly touch on, adding a few observations on their merit, and how far they may deserve to be quoted.

In an old book called *Ortus Sanitatis*, printed at Venice, 1426, in folio, appears a *Trifolium*, which I suppose to be meant for the *pratense*; though, from the barbarism of those times, both figure and description are so indifferent, that nothing certain can be affirmed respecting them. In the description, several species certainly are confounded; and the figure, though the foliola resemble those of *Trifol. pratense*, and the spike is sessile between the floral leaves, still erroneously represents two opposite leaves nearly in the middle of the stem. In a later edition of this book, published 1517,

occurs

occurs the same figure and description. In the third tome of Brunfelsii Herbarium, printed in Latin at Strasburg, 1536, in folio, I have seen another and better figure; which, under the name of *Brunella*, seems to represent *Trifol. pratense*. Still the figure is not distinct enough to enable me to judge of it with absolute certainty.

But the first evident figure of this *Trifolium* that I have seen, is found in Roefslin's Herbal, printed in German, at Frankfort on the Mayne, by Egenolphus, 1532, in folio. It is small, but represents the plant tolerably with one single stem, with proper leaves, and a sessile spike. Of this figure I have found thirteen re-impressions, which are in Egenolphi Imagines et Effigies, a work which contains only figures, and of the former of which there are three editions; in Dorstenii Botanicon, in two places, under the name both of *Epithymum* and *Trifolium*; in both the Latin editions of Dioscorides by Ryff or Rivius; and in the History of Lonicerus in Latin, as also in his German Herbal, of which I have seen two editions, under Uffenbach's name; and in this century, another by Ehrhart. The figures of Egenolphus and Rivius, as also those of Lonicerus himself, are in general coloured.

Fuchsen, or, as he is more commonly called, Fuchsius, in his History in Latin, printed at Basil, 1542, in folio, gave us a new and a good figure of this *Trifolium*, represented in its natural size and position, with several stems; and it is not much to our honour that this is still almost the best extant. The only thing that might be said against it, is, that a few of the spikes are represented pedunculated, and the floral leaves are not always opposite and sessile, as they ought to be. Of this figure we have a coloured re-impression in the German Herbal of this author; of which afterwards, first Tragus in his History, and after him Dodonæus in his

his Imagines, have each given us a copy on a smaller scale, engraved so that the figure is reversed. Neither of them can be called good, but that of Dodonæus is the best; and of this we find a re-impression in the second edition of his Imagines, as also in the French, Dutch, and English translations of his Pemptades, and in both editions of Turner's Herbal. At last John Bauhin, in his History, has given us a new and small copy of the figure of Fuchsius, altered for the worse, though not reversed.

Matthioli, in his Commentary on Dioscorides, published in Latin at Venice, 1554, in folio, began a new set of figures. He represents the plant, diminished, pretty well, with many stems from the same root; but, as to the floral leaves, he has committed the same fault with Fuchsius, and rather in a greater degree. It appears to me as if he had had the figure of the latter by him when he made his own, for they have an imperfect resemblance to each other, except that the figure of Matthioli has the points of the foliola rounder, and the spikes longer. This figure has afterwards been reprinted, or with more or less variation copied, in various works. Exact re-impressions of it I have seen in the second Latin edition of the Commentary of Matthioli, in the Latin Compendium of the same author, in the French translation by Moulin, and the Italian one by Costantini, and another later in the same language; further, in the Historia Lugdunensis, which Linnæus calls Dalechampii, and the French translation of it; and, lastly, in the Dioscorides in Spanish, by De Laguna. It must be remarked that Matthioli, in his Compendium, has committed two errors; first, in transposing the figures of *Trifol. pratense* and *montanum*; and, secondly, that in the description belonging to the latter, but inserted under the former, he mentions it as having purple flowers.

Of the copies of Matthiolus's figures I have seen three kinds. A larger one, in the Latin edition of his Commentary, in 1565, somewhat improved, and representing the plant nearly in its natural size : this has been copied in the Italian translations of this work, in the years 1568 and 1604. Secondly, one of the same size with the original, in the Latin Epitome of Matthiolus, by Camerarius ; but inferior in this respect, that all the spikes are represented oval, and pedunculated, or without floral leaves. Nevertheless it has been reprinted by Uffenbach in his German translation of Durantes's Herbario, by Becker in his Parnassus, and by Zvingerus in his Theatrum, both of them in German. Thirdly, one kind much smaller than the original one, but otherwise perfectly similar, found in the French translations of Matthiolus's Commentary, by Pinet. Camerarius has altered one of the above-mentioned faults committed by Matthiolus in his Compendium, and restored the figures of *Trifol. pratense* and *montanum* to their right places ; but he has retained the other, saying, that *Trifol. montanum* has purple flowers.

Another set of figures of the *Trifol. pratense* originated with Tabernæmontanus, in his Herbal, printed in German at Frankfurt on the Mayne, 1588, in folio. His figure is of the same size as the original or first one by Matthiolus, to which it bears some resemblance ; but is better in this respect, that all the spikes are furnished with close floral leaves, which however rather appear to represent a large calyx than real leaves. Re-impressions of this figure I have seen in eight places, viz. in Tabernæmontani Icones, and four later editions of his Herbal, the first of which was published by Casper Bauhin, and afterwards reprinted ; the third by Hieron. Bauhin, likewise reprinted in this century ; further in Gerarde's Herbal, and in Casper Bauhin's edition of the Commentary

tary of Matthiolus in Latin, of which I have seen a subsequent edition.

The ten remaining figures of *Trifol. pratense* are all to be regarded as originals, and are published by Rivinus, Zannichelli, the author of *Speſtacle de la Nature*, Blackwell, Weinman, Kniphof, Knorr, Regnault, Zorn, and Profeſſor Vahl. All theſe are genuine in this reſpect—that they are intended to repreſent the honey-fuckle Trefoil, as is evident from their poſture, ſtipulæ, foliola, and cloſe floral leaves, &c. But that of Kniphof is, as uſual, a very poor one; which indeed I would have paſſed over in ſilence, but that it has been referred to by more than one author. The figures of Zannichelli, Weinman, and Zorn are ſomewhat better; and thoſe of Blackwell and Regnault tolerably good: but both theſe authors, as well as Zorn, have been unfortunate in repreſenting the ſegments of the calyx very different from nature. The figures of Rivinus and Knorr are pretty good. That in *Speſt. de la Nature* is an indifferent one, and appears to be made from the cultivated variety: indeed it is pity that the otherwiſe good figure of Profeſſor Vahl ſeems to be alſo drawn from a cultivated ſpecimen; for the whole of its poſture nearly approaches to that of *Trifol. medium*, the leaves being too much pointed to repreſent the wild plant. But its principal diſtinguiſhing characteristics, the broad and awned ſtipulæ, as well as the ſeffile ſpike placed between two oppoſite ternate ſeffile leaves, are very well expreſſed.

Of all the figures now mentioned, Linnæus himſelf has quoted none but that of Camerarius, in both editions of the *Flora Suecica* and *Species Plantarum*; that of John Bauhin only in *Hortus Cliffortianus*; and that of Rivinus alone in his firſt *Flora*. To particularize which of theſe figures all

other authors have referred to, would be too tedious; it suffices to mention, that I have seen a few of each set quoted, but, what is surprising, mostly those of inferior merit; whereas the good one of Fuchsius has been in this century quoted by no one but Haller and Dr. Stokes.

It seems, therefore, that the *Trifol. pratense*, as having been known from the earliest ages, and being one of the most common plants in Europe, ought to have been exempt from the confusion in which many others are involved, and which is more excusable when some rare or less known plant is in question. Still it stands unfortunately in the same predicament; and Caspar Bauhin, according to his usual practice, began the confusion: for his *Trifolium pratense purpureum*, with his perplexed description and misplaced citations, comprehends at least three distinct species, besides the genuine *pratense*; under which last his *Trifolium pratense purpureum* is generally quoted by most authors, who thereby have authorised the blunder of Bauhin, not to mention other separate mistakes committed by some of them. I therefore esteem it necessary in this place to enumerate all the plants which I have found mistaken for the *Trifol. pratense*, or confounded with it. But I shall previously speak of

Trifolium pratense purpureum minus, foliis cordatis. Ray.

*Syn. iii. p. 328, n. 5. * tab. 13, fig. 1.*

This Haller has introduced as a different species in his *Stirp. Helv. p. 585, n. 13**, but in his *Hist. i. p. 164, n. 378**, he has inserted it as a variety of another Trefoil, which certainly is the *ochroleucum*; and on the other hand adduced the authors really belonging to this latter, under *Trifol. pratense*, as I am going to observe. Linnæus, probably misled by Haller, has also brought in this plant of Ray's, under his *Trifol. ochroleucum*, in *Syst. Nat.*

tom,

tom. iii. p. 233. * But the English botanists, who ought to be better acquainted with it, separate it from the *Trifol. ochroleucum*, since, besides other differences, it has purple flowers; and they make it a variety of *Trifol. pratense*, on account of its having a similar, though starved appearance; the stipulæ being in like manner awned, and the teeth of the calyx likewise nearly equal, as Dr. Sibthorp and Mr. Hudson have informed me. But it differs in other respects very materially; having the leaves opposite; the foliola small, short, and inversely heart-shaped; and the peduncle very long, and destitute of floral leaves.

The other plants that have been confounded with *Trifol. pratense*, though widely differing from it, are the following, viz.

1. *Melampyrum arvense*.

Trifolium majus. *Brunf. Herb.* tom. iii. p. 47.

This passage in Brunfels, Caspar Bauhin has quoted under his *Trifolium pratense purpureum*. But to judge from the figure annexed, for there is no such thing as description, the plant is by no means any Trefoil, though called so, but certainly a *Melampyrum*; as John Bauhin has already remarked in his *Historia*, tom. ii. p. 375, and which Haller in his *Stirp. Helv.* p. 626, n. 2, has taken for the *arvense*, which indeed it appears to be. This figure of Brunfels's is a re-impression of one in his *Herb.* ii. p. 58, where it has only obtained a German name.

2. *Trifolium repens*.

Trifolium pratense. *Lob. Adv.* p. 380. *Hist.* p. 493. (ed. Lat. 1576.) P. ii. p. 35. (ed. Belg. 1581.) *Icon.* ii. p. 29. *Dodod. Pempt.* p. 556. (ed. 1583.) p. 565. (ed. 1616.) et p. 898. (ed. Belg. 1644.) *Ger. Emac.* p. 1185, n. 1.

Trifolium pratense vulgare purpureum. Park. Theatr.
p. IIII, n. I.

Lobel, in his *Adversaria*, has indeed no figure; and gives a description which comprehends at least two species, the *Trifol. repens* and *pratense*. But that he chiefly had the *repens* in view, appears from his subsequent *Historia* or *Observationes*, in which he has given a pretty good figure of this plant, and at the same time referred to the above-mentioned *Adversaria*. Of this original figure by Lobel, re-impressions have afterwards been made in all the above works. It bears so near a resemblance to the *Trifol. repens*, as to leave us no room to doubt: and for this reason it appears to me the more surprising, that so many both ancient and modern authors could refer to it for the *pratense*, which it in no manner resembles. Thus I have seen Lobel cited by Caspar and John Bauhin, by Morison, by Haller, in *Stirp. Helv.* and by Knorr; Dodonæus by Haller, both in his *Stirpes* and *Historia*, by Linnæus, in both the editions of *Flora Suecica*, by Gorter, in both the editions of *Flora Belgica*, by Knorr, in his *Thesaurus*, by Mr. Hudson, in the last edition of *Flora Anglica*, and by Professor Vahl, in *Flora Danica*; Gerarde by Mr. Hudson, in both the editions of his *Flora*, and by the Rev. Mr. Relhan, in the *Flora Cantabrigiensis*; and, lastly, Parkinson by Ray, both in his *Historia*, and in all the three editions of his *Synopsis*, by Haller, in his *Stirpes*, by Wilson, Hill, and Mr. Hudson, in both places.

Haller happened first, either by an error in writing or printing, to misquote the last Latin edition of Dodonæi *Pemptades*, viz. p. 365 instead of 565; and, after him, this fault has been invariably copied by all the above-mentioned authors, except Gorter, who altered it in the last edition of his *Flora Belgica*. Haller also recommends the figure by Dodonæus as a good one, but Crantz criticises

ticises it as bad; and Dr. Stokes is the first who has remarked that this, as well as those by Lobel, Gerarde, and Parkinson, does not belong to *Trifol. pratense*, but to *repens*.

Gerarde, in his Herbal, has a genuine figure as well as description of *Trifol. pratense*; the former taken from Tabernæmontanus, as I have said above. But Johnson, who published a new, and, as himself called it, improved edition of Gerarde, thought this figure not good enough; and therefore inserted in its room the figure above cited, which represents the *Trifol. repens*, and is borrowed either from Lobel or Dodonæus; at the same time retaining Gerarde's description: and thus unluckily confounded plants so different as the creeping and purple Trefoil are. Parkinson, who afterwards published his Theatrum, copied the last edition of Gerarde; and, as he saw the flowers were there described purple, he thought it best to insert that circumstance in the very title: by this means the white *Trifol. repens* came to be called by him *purpureum*.

3. *Trifolium ochroleucum*.

Trifolium montanum majus, flore albo sulphureo. Merr.

Pin. p. 121.

*Trifolium lagopoides annuum hirsutum, pallidè luteum feu ochroleucum. Mor. Hist. ii. p. 141, n. 12. ** Et

Trifolium lagopoides, fl. ochroleuco. Ibid. sect. 2, tab. 12, fig. 12.

*Trifolium pratense hirsutum majus, flore albo sulphureo feu ochroleuco. Ray. Hist. i. p. 943, n. 8. ** Et *Syn. iii. p. 328, n. 3. **

*Triphylloides alpina, flore albo. Ponted. Anthol. p. 241.**

Trifolium Lagopoides flore subluteo. Vaill. Par. p. 195, n. 5.

All

All these five authors Haller has quoted in his *Stirp. Helv.* p. 586, under var. β , flore albo of *Trifol. pratense*. But in his *History*, tom. i. p. 164, he has only cited Morifon and Ray under var. Δ , flore ochroleuco, of the same Trefoil. Of this last, Linnæus also in the beginning considered the plant of Pontedera to be a variety, as appears from his *Flora Lapponica* and *Hortus Cliffortianus*; but afterwards he justly omitted this quotation.

That Merrett's *Trifolium* is the *ochroleucum*, is very probable from its being a native of England; and that Ray meant the same, is evident beyond doubt from his description: but with respect to Morifon, the matter is not so clear; for both his description, in which occur the terms *folia acuta*, and his figure, which represents the leaves narrow, lanceolate, and pointed instead of rounded at the ends, appear rather to indicate the *Trifol. pannonicum*, though the specimen in Bobart's collection at Oxford is *Trifol. ochroleucum*. It is far more difficult to make out what Pontedera aimed at; for, from his prolix description, nothing further can be concluded, than that the leaves, principally in the margin, as well as the whole calyx, are hairy; the flowers white and monopetalous; and that the seed-vessels generally contain one seed. Hence it follows, however, that his plant can neither be *Trifol. repens* nor *montanum*: and, independent of these two, I can think of no other capable of being called in question, except the *Trifol. ochroleucum* and *pannonicum*. But, as the above-mentioned characters are equally applicable to both of them, and as these two last-mentioned plants themselves are so nearly related as to be scarcely distinguishable but by their size, and the shape of their leaves, it is impossible to determine which of them Pontedera had in view. The plant of Vaillant is still more difficult to ascertain, for he has given no description at all.

4. *Trifolium montanum*.

Trifolium pratense ii. *Dur. Herb.* p. 1014. (ed. *Germ. Uffenbach.* 1619. *Franc. ad Moen.* 4^o.)

This Trefoil, which undoubtedly is the *montanum*, C. Bauhin has quoted under his *Trifolium pratense purpureum*. But as he is in every respect inaccurate, he has termed it *Trifolium pratense alterum*; and called his author by his Christian name *Castore*, instead of his surname *Durante*.

In all old authors, the *Trifol. montanum* always follows after the *pratense*, under the name of *album* or *acutum*, or else, which is the most common, *pratense alterum* or *pratense album*: and the figures of it have likewise had the same fate and changes, as I have before mentioned of those of the *pratense*. However, the *montanum* was not so early known; for it does not occur in Roefslin's Herbal, nor in the first edition of Egenolphi Imagines, or of Loniceri Historia. Among this set of figures it appears for the first time in Ryff's edition of Dioscorides, printed at Frankfort on the Mayne, by Egenolphus, in 1543, folio: otherwise, the first figure I have seen of it is in Fuchsii Historia published the preceding year. This is not only good, but the best of those that have fallen under my inspection.

While on the subject of *Trifol. montanum*, I must not pass over in silence the carelessness of C. Bauhin with respect to this plant, as indeed to almost all others: for he has quoted *Trifolium majus* i. *Clus. Pann.* p. 761, and *Hist.* vi. p. 245, both under his *Trifolium montanum album*, *Pin.* p. 328, which probably is the genuine *montanum*; and under his *Trifolium pratense album*, *Pin.* p. 327, which all authors have taken for the *repens*. Further, under this his *Trifolium pratense album*, he has cited Fuchsius, Matthiolus, Lonicerus, Turner, Camerarius, and Laguna, all of whom certainly meant the

Trifol.

Trifol. montanum; Lobelii Adversaria, and Thalius, who appear to have had the *repens* in view, at least Lobel; Durante, who has drawn the *Trifol. pratense*; and, lastly, Tragus and Dodonæus, who on this subject are so inexplicit, that I cannot determine their meaning. The question is then, where is the *Trifolium pratense album* of Bauhin to be quoted, whether under *repens*, *pratense*, or *montanum*? I think, most probably under the last-mentioned, if at all; as most of the authors quoted by him had this species in view.

5. *Trifolium, an incarnatum?*

Trifolium pratense purpureum vulgare. *Mor. Hist.* ii. p. 138, n. 5. * Et *Trifolium pratense purpureum.* *Ibid.* sect. 2, tab. 12, fig. 6.

This plant of Morison's, generally taken for *Trifol. pratense*, I have seen cited in three different manners. Boerhaave in the second edition of his *Hortus Lugdunensis*, Haller in his *Stirp. Helv.* and Seguiet in his *Plantæ Veronenses*, mention the page without taking notice of the figure; whereas Lightfoot and Relhan only refer to the figure. Linnæus quotes both.

As Morison under the description has not directed us to the figure, nor at the said figure referred to the body of the work for a description of it, we are very uncertain whether in those two places he had the same plant in view. His confused description, which is for the most part borrowed from C. Bauhin, affords but trifling or rather no information. And although Morison, in thus confounding several species together, may still have meant to point at the true *Trifol. pratense*, yet his figure will by no means suit that plant; but rather resembles *Trifol. incarnatum*, and perhaps it is even drawn from this species: but, if so, it betrays great carelessness in Morison, who has, in two places besides, described and drawn the last-mentioned Trefoil; viz. under *Trifolium*

lium purpureum et annuum, folio hirsuto rotundo, Trifolii pratensis albi forma, Mor. Hist. ii. p. 140, n. 3. * Et *Trifol. lagopoides Trifolii pratensis folio*, Ibid. sect. 2, tab. 12, fig. 3. And under *Trifolium purpureum lagopoides hirsutum annuum rotundifolium, spica dilute rubente*, Mor. Hist. ii. p. 140, n. 6. * Et *Trifolium lagopoides rotundif. hirsut.* Ibid. sect. 2, tab. 13, fig. 6, a leaf only. The complete figure represents *Trifol. angustifolium*. This Linnæus has not quoted; but the whole of the passage immediately preceding, which belongs to *Trifol. incarnatum*, he has inserted under his *Trifol. squarrosum*.

Finding myself unable to extricate this confused *Trifolium pratense purpureum* of Morison's, I wrote a letter some time ago to Professor Sibthorp at Oxford, asking the favour of him to examine the old Herbariums under his care, in order to discover whether they might not throw some light on the matter. His answer is as follows: "The plant in Bobart's Herbarium, under this title of Morison's, "is *Trifol. ochroleucum*; which, however, as I never saw it with "purple flowers, I can scarcely think Morison meant. But there "is a passage in the description of his *Trifolium lagopoides annuum hirsutum pallidè luteum seu ochroleucum*, p. 141, n. 12, "which seems to point at his *Trifolium pratense purpureum*; "namely, *Vide ejusdem iconem in tab. duodecima, ante lagopoides pennatum, et refer huc propter colorem, extra gregem Trifoliorum spicatorum seu lagopoideorum flore purpureo illic donatorum*. The figure I confess "has a considerable resemblance to that of *Trifol. incarnatum*; "but this has an annual, not a perennial, root."

6. *Trifolium mihi ignotum*.

Trifolium pratense. Gmel. *Tubing.* p. 227. *

This is quoted by Reichard in his *Systema Plantarum*; but as Gmelin says that it has *caulis procumbens, folia lanceolata*, and *capitulum*

tulum solitarium aut geminum, there is reason to doubt its being *Trifol. pratense*; but when he further adds, that it has *stipulæ lineares crenatæ*, it is evident he cannot mean this species. Had he not at the same time made separate mention of *Trifol. rubens*, I should have supposed he here hinted at it under the wrong name of *pratense*. At least I do not for my part know of any other species with crenated stipulæ, which Gmelin can possibly have intended.

* * * * *

HAVING thus finished the history of the *Trifolium alpestre*, *medium*, and *pratense*, and pointed out with what plants they have in former, as well as present times, been confounded, it remains for me to describe them botanically, and under each to insert the proper synonyms. With a view of duly distinguishing the *Trifol. alpestre* and *medium*, which have always been mistaken for one another, I shall bring in all the authors I have seen that mention them. But with respect to *Trifol. pratense*, I think I need only take notice of those who have either figures or descriptions, or who have been cited by Linnæus and Reichard; and yet their number is so very great, that I almost fear to mention them. In order to prevent all further confusion in future, I have found it necessary to give each of these Trefoils a new character, as their present specific differences are not sufficient to distinguish them from all others, still less from one another. I shall now retain the same order as above, since I think that to be the most natural.

- I. *TRIFOLIUM alpestre*, spicis densis, corollis subæqualibus, stipulis fetaceis divergentibus, foliolis lanceolatis, caulibus strictis simplicissimis.

Trifolium

Trifolium alpestre. *Linn. Spec. Plant. ed. 2, p. 1082.* *
Syst. Nat. ed. 12, tom. ii. p. 502. * *Mant. Plant. ii.*
p. 451. *Murr. Syst. Veg. ed. 13, p. 573,* * *et ed. 14,*
p. 688. * *Reich. Syst. Plant. P. iii. p. 553.* * *Jacqu.*
Obs. iii. p. 14, * *tab. 64. et Fl. Austr. vol. v. p. 15, seq.* *
tab. 433. *Allion. Pedem. tom. i. p. 304, n. 1101.*

Trifolium majus purpureo flore ii. *Clus. Pann. p. 760.* *

Trifolium majus ii. *Clus. Hist. libr. vi. p. 245.* *

Trifolium majus Clusii secundum, non album, sed ru-
brum. *Bauh. Hist. tom. ii. p. 375.* *

Trifolium montanum purpureum majus, C. B. *Ray. Hist.*
tom. i. p. 944, n. 6. * *Tournef. Instit. p. 404.* *Boerb. Lugd.*
ed. 2, P. ii. p. 30, n. 1.

Trifolium fol. long. fl. purp. *Rivin. Tetr. tab. 12, fig. 5n.*

Dubia.

Trifolium alpestre. *Doerr. Nass. p. 236, n. 7.* *

Trifolium montanum purpureum majus. *Bauh. Pin.*
p. 328.

Habitat in locis siccis montanis sylvaticis Hungariæ, Austriæ,
 Bohemiæ, Moraviæ, Stirii, *Clusius*, *Jacquin*, *Pedemontii*, *Allioni*,
 et forsan *Nassoviæ*, *Doerrien*.

Radix obliquè descendens, infra tellurem repens, fusca.

Caules stricti, simplicissimi, teretes, pallidè virides.

Stipulæ longæ, setaceæ, uni-nerves, villosæ, cauli approximatae, a se
 invicem divergentes, vaginantes: vaginis angustatis, semiam-
 plexicaulibus, margine utrinque rectis, initio villosis ciliatisque,
 dein glabris et vix nisi in sinibus inter stipulas petiolumque
 ciliatis.

Petioles subæquales, brevissimi, longitudine stipularum, erecti.

Foliola subæqualia, ejusdem figuræ, lineari-lanceolata, acutiuscula et fasciculo pilorum terminata; supra evidentius subtus obsoletius venosa, versus oras e crebrioribus majoribusque venis concurrentibus quasi striata; margine ad tactum scabra, oculis nudis subintegerrima, sed armatis subtiliter denticulata, et paucis brevibusque pilis instructa.

Spica ovalis, vel solitaria et sessilis intra folium florale dependens, vel plerumque gemina, et tum altera in proprio folio breviter pedunculata seriusque florens præcociorem deprimit.

Flores erecti, dense imbricati.

Perianthium villosissimum, ochroleucum; striis parum obscurioribus. *Dentes* pallidè virides, *superiores* bini æquales et tubo perianthii breviores, *inferiores* bini etiam æquales sed superioribus paulò longiores et tubum perianthii ut plurimum æquantes, *infimus* longitudine tubi corollæ sed proximis dentibus duplo longior et interdum ultra.

Corolla inodora, tota saturatè purpurea: alis vexillo vix brevioribus, carinâ verò parum longioribus.

Congruit qua staturam et habitum præsertim *Trifoliis rubenti, montano* et *pannonico*, quæ vero ab illo satis differunt; nempe—

Rubens vaginis inflatis stipulisque subferratis multo majoribus; foliolis spinulosis e venis excurrentibus in hamulos ad apicem folioli versos, alternos minores; spicis longis pedunculatis; perianthio glabro, dentibus quatuor superioribus basi dilatatis brevissimis, inferioribus binis paullulò longioribus, infimo filiformi, longitudine totius corollæ, et proximis dentibus saltem triplo longiori.

Montanum caulibus angulato-striatis, multifloris; foliolis iisdem ac in *Trifolio rubenti*; spicis pedunculatis; perianthio glabriusculo,

culo, dentibus quatuor superioribus æqualibus, infimo parum longiori; corollis tetrapetalis albis, vexillo subulato.

Pannonicum caulibus subangulatis, sæpè ramosis; stipulis subulatis ciliatis; foliolis utrinque villosis, obsolete venosis; spicis majoribus pedunculatis; dentibus perianthii quatuor superioribus subæqualibus vel inferioribus binis parum longioribus; corollis albidis. His, præter alia, etiam differt *Trifolium ochroleucum* pannonico simillimum.

2. *TRIFOLIUM medium*, spicis laxis, corollis subæqualibus, stipulis subulatis conniventibus, caulibus flexuosis ramosis.

Trifolium medium. Linn. *Fn. Suec.* ed. 2, p. 558. *Huds. Angl.* ed. 1, p. 284. *Jenk. Brit. Pl.* p. 178.

Trifolium flexuosum. *Jacqu. Austr.* iv. p. 45, * *tab.* 386. *Allion. Pedem.* i. p. 305, n. 1105. *Wither. Bot. Arr.* ed. *Stok.* p. 795, sq. *

Trifolium alpestre. *Crantz. Austr. Fasc.* v. p. 407, n. 5. * *Scop. Carn.* ed. 2, tom. ii. p. 79, n. 924. * *Leers. Herborn.* p. 160, n. 575. * *Lightf. Scot.* p. 406. * *Robt. Brit. Fl.* p. 137, n. 8. *Poll. Palat. tom.* ii. p. 335, n. 702. * *Mull. Fl. Dan. Fasc.* xii. p. 3, *tab.* 662. *Huds. Angl.* ed. 2, p. 326. *Retz. Prodr.* p. 141, n. 819. *Liebl. Fuld.* p. 303, sq. * *Relb Cant.* p. 281, n. 539. *

Trifolium pratense β. *Gort. Belg.* ed. 1, p. 212, et ed. 2, p. 195.

Trifolium, n. 6. * *Doerr. Nass.* p. 236.

Trifolium spicis villosis, foliis insidentibus, vaginarum caudis latioribus. *Hall. Stirp.* p. 585, n. 12. * *Boehm. Lips.* p. 135, n. 318. * *Nonn. Erford.* p. 155, n. 5. * *Gattenb. Heidelb.* p. 177.

Trifolium:

Trifolium corollis monopetalis æqualibus, spicis subrotundis, stipulis lanceolatis, foliis integerrimis. *Scop.*

Carn. ed. 1, p. 525, n. 3. *

Trifolium foliis ovatis nervosis, supremis conjugatis, vaginis lanceolatis. *Hall. Hist. tom. i. p.* 163, n. 376. *

Trifolium pratense purpureum majus. *Ray. Hist. i. p.* 944, n. 3. * *Et ejusdem Syn. ed.* 1, p. 134, n. 5. *

Trifolium purpureum majus, foliis longioribus et angustioribus, floribus saturatioribus. *Ray. Syn. ed.* 2, p. 194, n. 6, * *et ed.* 3, p. 328, n. 7. * *Tournef. Inst. p.* 404. *Boerb. Lugd. ed.* 2, P. 2, p. 31, n. 8. *Wilf. Syn. p.* 210, n. 7. * *Hill. Brit. p.* 381. *

Trifolium flore rubro majus, folio maculoso. *Lind. Wiksb. p.* 38. (*ed.* 1716.)

Trifolium montanum purpureum majus, C. B. *Rupp. Jen. ed.* 1, p. 247; *et ed.* 2, p. 207. *

Dubia.

Trifolium alpestre. *Gmel. Tubing. p.* 228. *Scholl. Barb. p.* 168, n. 595. * *Mattusch. Fl. Sil. p.* 165, n. 542. * *Et ejusdem Enum. p.* 186, n. 690. * *Reich. Moeno-Franc. P.* 2, p. 46, n. 521. *Willden. Berol. p.* 242, n. 749.

Trifolium spicis villosis subovatis, caule erecto, foliis ovato-oblongis integerrimis. *Roy. Lugd. p.* 380, n. 21.

Trifolii pratensis altera species major. *Gesn. Hort. p.* 285.

Habitat in locis ficcioribus, elatis, præsertim fruticosis, sylvestribus cretaceis et argillofis, in Anglia, Scotia, Suecia, Dania, Austria, Carniolia, Pedemontio, Hollandia, Helvetia, et variis Germaniæ partibus.

Radix obliquè descendens, infra tellurem repens, fusco-cineras-cens.

Caules suffruticulosi, internè obliqui subtrigoni (siccati exactè trigoni), supernè erectiusculi teretes, geniculato-flexuosi, ramosi: ramis e tumore axillari calloso adfurgentibus, saturatè virides, interdum hic illic rubentes.

Stipulæ longæ, subulatæ, 3—5 nerves, glabræ, ciliatæ, a caule divergentes, inter se conniventes, vaginantes: vaginis angustatis, subamplexicaulibus, margine utrinque rectis, initio villosis, dein glabris ciliatis.

Petoli inæquales, inferiores stipulis multo longiores, superiores ferè breviores, omnes subdivergentes.

Foliola inæqualia, initio et internè ovata, dein et medio oblonga, tandem et supernè ferè lanceolata et sæpè subattenuata, foliorum infimorum multo minora obtusissima et interdum retusa, reliquorum majora et acutiora, omnia supra obsoletius subtus evidentius venosa, supra etiam lunulis binis pallidis longitudinalibus et ad apices contiguis frequenter notata, versus oras evenis concurrentibus substriata, margine villis pluribus longiusculis appressis instructa, ad tactum vix scabra, oculis nudis integerrima, sed armatis tenuissimè denticulata, præsertim in foliis superioribus.

Spica initio spheroides, tandem globosa vel ovalis, solitaria vel gemina; alterâ plerumque serius florente, sessilis vel pedunculata, una vel utraque; pedunculis inæqualibus, unico vel duobus foliis floralibus suffulta ut plurimum dependentibus.

Flores divergentes, laxè imbricati.

Perianthium compressiusculum, glabrum vel rarius pilosum, pallidum et sæpè hic illic purpurascens, præsertim in spicæ vertice: striis saturatè viridibus et interdum purpureis. *Dentes* virides et plerumque

plerumque simul qua partem rubentes, *superiores* bini æquales et tubo perianthii breviores, *inferiores* bini etiam æquales sed superioribus longiores et tubum perianthii vel æquantes vel paullum excedentes, *infimus* longitudine tubi corollæ, sed proximis dentibus multo, non tamen duplo, longior.

Corolla odorata : vexillo alis vix longiore submucronato, striis saturatius purpureis instructo ; alis pallidioribus carinâ parum longioribus.

Differt a Trifolio alpestri abundanter, ut e descriptione utriusque comparata facile patet. Sed præterea ab eo etiam distinguitur *partibus* plurimis majoribus et colore obscuriori præditis ; *radice* magis lignosa et terræ tenacius inhærente ; *caulibus* diffusis et vix umquam solitariis ; *stipulis* latioribus, ut et vaginis, quæ venis insuper crebrioribus gaudent sæpiusque purpureis ; *petiolis* subpilosis et non villosis ; *folio* florali sæpius unico ; *foliis* multo latioribus et plerisque oblongis, subtus glaucescentibus nervoque minori instructis, versus oras obsoletius striatis : *spica* donec integra floreat, vertice depressa, et plantæ cultæ minori ; *perianthio* striis magis elevatis remotisque, dentibus minus pilosis et infimo proportionem breviori, utpote longitudinem dentium proximorum duplam non attingente ; *corolla* dilutius purpurea, præsertim in alis, et ceteroqui qua magnitudinem formamque simillima illis in Trifolio rubenti.

3. TRIFOLIUM *pratense*, spicis densis, corollis inæqualibus, dentibus calycinis quatuor æqualibus, stipulis aristatis, caulibus adscendentibus.

Trifolium pratense. *Linn. Spec. Plant.* ed. 1, p. 768, * et ed. 2, p. 1082. * *Flor. Suec.* ed. 2, p. 259, n. 666. *

Syst.

Syst. Nat. ed. 10, tom. ii. p. 1177, et ed. 12, tom. ii. p. 502. *Mant. Plant.* ii. p. 451. *Murr. Syst. Veg.* ed. 13, p. 572, et ed. 14, p. 688. *Reich. Syst. Plant.* P.iii. p. 552.* *Kniph. Cent.* i. n. 91. *Mill. Diæt.* ed. 8, n. 1. *Hudsf. Angl.* ed. 1, p. 284, et ed. 2, p. 325. *Neck. Gallo-Belg.* tom. ii. p. 315. *Gmel. Sib.* tom. iv. p. 22, n. 29.* *Crantz. Austr.* v. p. 407, n. 6. * *Scop. Carn.* ed. 2, tom. ii. p. 79, n. 923. * *Regn. Botan. Leers. Herborn.* p. 160, n. 574. * *Lightf. Scot.* p. 404. * *Poll. Palat.* tom. ii. p. 333, n. 701. * *Mattusch. Fl. Sil.* p. 159, n. 541. * *Doerr. Nass.* p. 235, n. 5. * *Zorn. Icon.* cent. i. p. 56*, tab. 93. *Gattenb. Heidelb.* p. 177. * *Liebl. Fuld.* p. 302. * *Cappel. Helmst.* p. 126, fq. * *Rehb. Cant.* p. 280, n. 538. * *Wither. Bot. Arr.* ed. *Stok.* p. 794, fq. * —————
Egenolph. Imag. p. 139 (ed. ut vid. tert. sine impr. anno) et ejusd. *Effig.* p. 144 (ed. 1562). *Lonic. Hist.* tom. i. p. 104½ (ed. Lat. 1551) et ejusdem *Herb.* P. ii. p. 180, fig. fin. (ed. Germ. 1564), p. 249, fig. fin. (ed. Germ. Uffenbach. 1630, alt. 1679, et Ehrhart. 1737). *Trag. Hist.* p. 586. *Dodon. Imag.* P. ii. p. 39 (ed. 1554 et 1559) et ejusd. *Hist.* p. 338 (ed. Gall. 1557), p. 423 (ed. Belg. 1563), p. 494 (ed. Angl. 1578). *Matth. Comm.* p. 394 (ed. Lat. 1554), p. 439 (ed. Lat. 1559), p. 835 (ed. Lat. 1565), p. 883 (ed. Ital. 1568 et 1604), p. 609 (ed. Lat. C. Bauh. 1598, et alt. 1674), p. 321 (ed. Gall. 1620, p. Pinet.), p. 330 (ed. Gall. alt. 1680), p. 491 (ed. Ital. 1621 et 1712). *Camer. Epit.* p. 582. *Tabernæm. Herb.* P. ii. p. (ed. 1588), p. 235 (ed. C. Bauh. 1613), p. 225 (ed. ejus alt. 1625), p. 908 (ed. Hier. Bauh. 1664, et alt. 1731), et ejusd. *Icon.* p. 523. *Ger. Herb.*

- p. 1017, n. 1. * *Bech. Parn. P. ii. Phythol. p. 384. Lagun. Dioscor. p. 341. Zving. Theatr. p. 748.*
- Trifolium pratense* i. *Matth. Comm. p. 472* (ed. Gall. 1572, p. Moulin). *Durant. Herb. l. Hort. Sanit. p. 1014* (ed. Germ. Uffenb. 1619).
- Trifolium pratense* i. *Matthioli, Dalech. Hift. P. 2, p. 1354* (ed. Lat. 1587), p. 241 (ed. Gall. 1615).
- Trifolium spicis villosis, caule diffuso, foliolis integerrimis.* *Linn. Hort. Cliff. p. 375, n. 16. * Virid. Cliff. p. 76. Fl. Suec. ed. 1, p. 222, n. 615. Roy. Lugd. p. 380, n. 20. Dalib. Paris. p. 222.*
- Trifolium spicis villosis, foliis insidentibus, vaginarum caudis capillaribus.* *Hall. Stirp. p. 585, n. 14. **
- Trifolium corollis monopetalis inæqualibus, spicis subrotundis, stipulis setaceis, foliis integerrimis.* *Scop. Carn. ed. 1, p. 524, n. 1. **
- Trifolium caule obliquo, foliis ovatis hirsutis, supremis conjugatis, vaginis aristatis.* *Hall. Hift. tom. i. p. 163, n. 377. **
- Trifolium vulgare.* *Blackw. Herb. tab. 20.*
- Trifolium.* *Roeff. Herb. p. 297. Egenolph. Imag. p. 10* (ed. 1536). *Dorff. Botan. p. 288, D. (ed. Lat. 1540). Rivin. Tetr. tab. 11, fig. fin.*
- Trifolium pratense purpureum.* *Fuchf. Hift. p. 817* (ed. Lat. 1542) et ejusd. *Herb. tab. 468* (ed. Germ. 1543. *Turn. Herb. P. ii. p. 157½* (ed. 1562 et 1568). *Rudb. Hort. Ups. p. 40* (ed. 1666), p. 111 (ed. 1685). *Ray. Hift. i. p. 943, n. 2. * Magnol. Charact. p. 293. * Wilf. Syn. p. 209, n. 4. * Knorr. Thesaur. P. ii. p. 121, fq. * tab. T. 3.*

- Trifolium purpureum*. *Ryff. l. Riv. Dioscor.* p. 258 (ed. 1543), p. 257 (ed. 1549). *Egen. Imag.* p. 126 (ed. 1546).
- Trifolium pratense alterum*. *Matth. Comp.* p. 522.
- Trifolium purpureum vulgare*. *Baub. Hist.* ii. p. 374.
- Trifolium pratense flore purpureo*. *Frank. Specul.*
- Trifolium flore purpureo*. *Till. Aboëns.*
- Trifolium pratense purpureum minus, folio maculoso*.
Lind. Wiksb. p. 38 (ed. 1716).
- Trifolium pratense, flore monopetalo*. *Tournef. Instit.*
p. 404. *Boerb. Lugd.* ed. 2, P. ii. p. 31, n. 7. *Zannich. Istor.* p. 264, n. 1, * tab. 185. *Linn. Fl. Lapp.* p. 221, n. 273.
- Trifolium pratense rubrum*. *Weinm. Phyt. Iconogr.* vol. iv. N^o. 980. ♂.
- Triphylloides pratensis, flore purpureo*. *Ponted. Anthol.*
p. 241. *Segu. Veron.* vol. i. p. 274.
- Epithymum*. *Dorff. Botan.* p. 114.
- Var. β. *fativa*. *Hall. Stirp.* p. 586, et *Hist.* i. p. 163.
- Trifolium pratense*. *Vahl. Fl. Dan.* Fasc. xvii. p. 6, tab. 989.
- Trifolium pratense γ*. *Hudsf. Angl.* ed. 1, p. 284, et ed. 2, p. 325. *Wither. Bot. Arr.* ed. Stok. p. 795. *
- Le Trefle. *Speët. de la Nat.* tom. iii. *Icon. A.* ad p. 26 (ed. 1735).
- Trifolium purpureum majus fativum, pratensi simile*.
Ray. Syn. ii. p. 194, n. 5, * et ed. 3, p. 328, n. 6. *
Wilf. Syn. p. 210, n. 6. * *Hill. Brit.* p. 381. *
- Var. γ. *flore albo*. *Hall. Hist.* i. p. 164, cfr. *Mattusch. Enum.*
p. 186, n. 689. *Wither. Bot. Arr.* ed. Stok. p. 795.

Dubia.

Trifolium pratense purpureum. *Baub. Pin.* p. 327. *

Trifolium. *Ort. Sanit.* cap. 476 (ed. 1426 et 1517).

Brunella. *Brunf. Herb.* tom. iii. p. 26.

Habitat in pratis et pascuis per totam Europam copiosè; etiam in Siberia, *Gmelin*, et America Septentrionali, *Herb. Banks.* Locis pinguioribus, humidiusculis et apricis præsertim lætatur; nec tamen sterilia, sicciora atque umbrosa respuit.

Radix ferè perpendiculariter descendens, infra tellurem vix repens, granulata, cinerea.

Caules adscendentes, internè altero latere planiusculi (siccati trigoni), ceterum teretes, supernè striati, sæpius subramosi; ramulis patentibus, tumore axillari destitutis; virides, rarius rubicundo-tincti.

Stipulæ breves, latæ, venosæ, glabræ, conniventes, aristatæ: arista capillari viridi apice præsertim pilosa, vaginantes: vaginis dilatatis, amplexicaulibus, margine utrinque arcuatis, glabris, rarius subpilosis.

Petoli inæquales, plerumque longissimi et stipulis multoties longiores, patentes.

Foliola inæqualia, ovata vel ovalia, obtusa, foliorum infimorum multò minora, ferè orbiculata, retusa, omnia supra depresso-subtus elevato-venosa, supra etiam macula centrali subsagittata pallida plerumque notata, subciliata, integerrima vel interdum leviter et acutè crenulata.

Spica ovata, obtusa, solitaria vel rarissimè gemina, interdum pedunculata, plerumque vero sessilis intra folia duo floralia opposita erecta.

Flores erecti, densè imbricati.

Perianthium sericeum, pallidum et interdum qua partem purpureum: striis saturatè viridibus vel rubris, rarius fuscis. *Dentes*

virides et sæpè magis minusque rubentes, *superiores* quatuor æquales, longitudine tubi perianthii, *infimus* paullò longior, sed tubo corollæ brevior, fructu maturo *illi* patentissimi, *hic* erectus.

Corolla odorata: vexillo alis longiore truncato et sæpè emarginato, striis saturatius purpureis instructo; alis pallidioribus, carina longioribus.

Differt a *Trifolio* medio vehementer, ut comparata utriusque descriptio facilè evincit, sed insuper huic etiam est dissimile *radice* multò minori; *caulibus* non flexuosis, plantæ spontaneæ humilioribus, magis procumbentibus, sæpè solitariis, haud rarò simplicissimis, ramulisque si adsunt paucioribus; *stipulis* parvis et aliter formatis; *vaginis* multò majoribus, non ciliatis, et sæpius rubro- vel fusco- venosis; *foliis* floralibus semper binis; *foliolis* brevioribus, plerisque ovatis, obtusioribus, sæpius albido-maculatis, obsoletius venosis; supra venis plantæ vivæ depressis, siccatae vero paullulum elevatis; *spica* minori, multò rarius pedunculata geminaque, et vertice non depressa; *perianthio* nunquam prorsus glabro; *corolla* minori, multò magis inæquali, plerumque pallidius purpurea, saltem alis apice non, ut in *Trifolio* medio, coloratioribus; *vexillo* angustiori; et tandem quod prius floreat.

Var. β. planta agresti multò major magisque glabra, caulibus pluribus; foliolis acutioribus; spica sæpius pedunculata non adeo rarò gemina; perianthio plerumque villosiori, dente infimo proportionem longiori; vexillo alisque corollæ magis divergentibus; stylo frequenter breviori; legumine sæpè dispermo. In hoc statu culto, quum caules sint diffusi et ad flexionem quasi tendant, e longinquo *Trifolium* medium adedò refert, ut pro eo facillimè accipiat;

queat; sed propiori inspectione, stipulis præsertim dentibusque calycinis longè diversis, sine ulla difficultate potest dignosci.

Var. γ. non nisi corollis albis differt, in satis interdum occurrit, inter plantas agrestes multò rarior est; ex Angliæ comitatu Derbieni allatam vidi in Herb. Banks.

Præter has varietates, *Trifolium pratense* foliolis etiam quaternis, licet rarissimè, reperiri, inter omnes constat.

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IN examining *Trifolium alpestre*, *medium*, and *pratense*, I have found them agree in very many respects. To prevent tautology, I have taken care to avoid mentioning in their descriptions any circumstance common to all these three species; but, for the sake of a more complete knowledge of the genus, I shall here in one place enumerate them all. However, as I have not had an opportunity of seeing *Trifol. alpestre* living, I cannot with absolute certainty determine the nature of its stamina, pistilla, seed-vessels, and seeds; but what I shall mention with respect to these parts of fructification, I have chiefly taken from *Trifol. medium*, and particularly from the *pratense*. But as to the rest, I know they agree in the following circumstances.

Radix perennis, teretiuscula, ramosa.

Caules ex eadem radice plerumque plures, spithamæi, pedales et ultra, foliosi, infernè glabri, supernè villosi vel magis minusve pilosi.

Folia alterna, vaginis insidentia, petiolata, ternata; floralia sessilia vel breviter pedunculata, plerumque duo opposita; altero semper minore.

Vaginæ membranacæ, integerrimæ, ochroleucæ, nervoso-venosæ
(*vagis*

(*vasis* nempe simplicibus, versus oras repetito-dichotomis, viridibus vel purpureis; et in *Trifolio pratensi* interdum fuscis), terminatæ *Petiole* intermedio, et excurrentes in *Stipulas* laterales integerrimas et virides, in *Trifolio* autem *pratensi* sæpe rubro-vel fusco-venosas. *Vaginæ stipulæque* florales ceteris multò ampliores.

Petiole supra canaliculati, ceterum striatuli, villosi vel magis minusve pilosi.

Foliola subsessilia, nervoso-venosa ut *vaginæ*, supra glabra subtus subvillosa, inprimis juniora, et pallidiora; floralia minora angustiora et plerumque lanceolata.

Spicæ terminales: floribus sessilibus in rachi subangulata aphylla villosa.

Perianthium turbinato-cylindricum, monophyllum, tubulosum, abbreviatum, inferum, persistens, decemstriatum; strii elevatis; quinquedentatum; dentibus sinu rotundato remotis, setaceis, pilosis, rectis, infimo interdum adscendenti in *Trifolio medio*, et forsan etiam *alpestri*.

Corolla monopetala, purpurea, marcescens, papilionacea; vexillo reflexo alisque patentibus obtusis, carina coloratiore.

Filamenta decem, hyalina, apice virescentia, unum totum liberum capillare, novem in membranam germen involventem infernè connata, supernè libera, primum subulata et dein apice incrassata.

Antheræ subrotundæ incumbentes flavæ.

Germen ovatum vel oblongum glabrum virescens.

Stylus unicus, deorsum attenuatus, adscendens, hyalinus.

Stigma simplex deflexum obtusum prasinum.

Legumen ovale vel oblongum compressiusculum glabrum monospermum,

spermum, in perianthio, cujus faucem squamulæ claudunt, occultatum corollaque emarcida cinctum, atque stylo persistente mucronatum, in latere versus apicem dehiscens, femine maturo cinerascens vel flavicans.

Semen subreniforme, compressiusculum, glabrum, nitidum, subflavescens.

